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ABSTRACT

This guide, which derives from planning work at Southeast Community College (Nebraska), is designed to improve the practice of vocational program planning at the postsecondary level. After an overview is provided in the first section, a compilation of seven separate categories is presented which deals with gathering needed information for reviewing new vocational program proposals. The following types of information are suggested to be collected: identification of researchers' implementation date; brief program description; supply/demand data; specific employer needs; future employment opportunities; employer-identified prerequisites; admission requirements; enrollment potential; program design including objectives, structure, impact, and expansion plans; advisory committee construction and other agency involvement; rationale; staffing; facilities; equipment; projected income; budget; and summary comments concerning impact, timing, and justification. An elaborate color-coded participation matrix is presented using eight generic questions with a descriptive scale describing the possible involvement of governments, educational agencies, employers, employees, the general public, and the local school. A planning process model is diagramatically presented in order to assess a vocational program at any stage of its justification, development, implementation, or operation. An illustration of the process is presented in the development of a program for sonographers. A PERT network is provided which includes events, activities, and time frames. A bibliography of sources, the new program proposal, and a questionnaire for data collection are appended. (BPB)

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"Modeling a Program Planning Process for Vocational Education"

Lincoln Campus
Southeast community college

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FORWARD

The planning model illustrated and reported in the following pages was designed for use in a postsecondary institution. Its model characteristics are not limited to that field of education. The project was developed in response to a need to involve a broad spectrum of community agencies in program planning. It reflects this commitment through the identification of acting participant agencies and the type of authority, commitment, advice that is appropriate. It is a credit to the project staff and the project institution that the model could be implemented and successfully demonstrated in a "real world" situation.

Implementation of this planning model in other settings should require very little modification. The key to operationalizing the model is a positive attitude toward planning as a rational means of supporting the decision-making process.

Elton B. Mendenhall, Director
Nebraska Research Coordinating
Unit

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I. Introduction

Vocational education program planning is practiced with varying degrees of sophistication. The investment of effort and the strategies used are equally variable. The most sophisticated and intensive planning efforts are on the surface, used by the largest and often strongly state-coordinated educational institutions. Formal studies are often commissioned, published, and reviewed intensively by trustees or officials sincerely determined not to commit an error in their important decision to or not to offer a particular program. Sometimes important errors, of omission or otherwise, are committed in the conduct of these studies which render their use as a foundation for decision-making less than sound. In probably more cases no adequate study is even attempted. Planners intuitively "know" that a program will succeed (or will not) and proceed with their plans regarding that program. When the data is strongly supportive of a particular planning decision, it is certainly true that one can often "know" through our simple familiarity with the work place. But as the breadth of vocational offerings continues to expand, the likelihood of the data regarding the justification of new occupational programs being so obvious is diminished. The point is that the planning process is variable, the quality and thoroughness of it is variable, and the need and importance of the planning process is variable.

The purpose of this guide is to improve the practice of vocational program justification first at Southeast Community College-Lincoln, and then perhaps at other locations where programs are being considered. The approach taken in these materials is a pragmatic one. No attempt is made to push the practice toward the most formal or most sophisticated. An intensive formal study in an area in which a conclusion is obvious from the start is just as wasteful and inappropriate as is the shirt sleeve/quick decision by a single official when no obvious conclusion exists. The costs of either of these mistakes is too great to risk--thus the pragmatic approach of the guide.

Another element of reality one will find addressed in the methodology of this guide is the widely variable expectations held by individuals, agencies, political bodies, and client groups regarding the planning process of a particular program. Any experienced administrator can relate the problems of implementing a rigid process to decide something when perhaps other methods are more acceptable to those involved in the decision-making process. To ignore such circumstances would simply eliminate the usefulness of this guide in a surprising number of important instances.

The guide, then, is based upon an accepting attitude toward local practice. (Local in a geographic and in a circumstantial plane.) It attempts to inform, suggest, and remind decision makers of important considerations. If a particular thought or suggestion can or must be eliminated--for whatever locally relevant reason--so be it. The premise remains intact; informed program planners make better decisions. Some

decisions are regarding processes; level of intensity, sophistication, scope, etc. Other decisions will relate directly to the program question at hand. The guide or its authors have no purpose other than to share the results of an investigation into important considerations in program planning.

II. Important Information Considerations

A Description

The "Program Planning" project at SCC-Lincoln developed two major tools for program planning, the first being a list of important information to consider and facts to gather when making decisions about a new program. This document is entitled Important Considerations for Reviewing New Vocational Program Proposals.

This document was developed by compiling and editing similar materials currently in use in other Nebraska Community Colleges and in colleges and state education agencies of several other states (Appendix A). There are seven separate categories which deal with gathering needed information. They are:

I. Description

II. Evidence of Need

III. Students

IV. Program Design

V. Participation/Coordination

VI. Resources

VII. Summary

Should all of the information outlined in this document be gathered and studied, the program planners have a strong base from which to make a new program decision. It is important, however, to remember that this is a flexible tool. Not all information considerations are appropriate or practical for all programs or circumstances. Judgment should be used by the planner to identify areas which may need more or less information.

Many different people within a community college are responsible for all or part of planning a new program. Depending on factors such as available planning time, length and breadth of the proposed program and local expertise, there may be one or a dozen people involved in finding answers to all the questions implied by the list of Important Considerations for Reviewing New Vocational Program Proposals. Also, the internal operations will vary the manner in which this task is approached.

Important Considerations for Reviewing New Vocational Program Proposals

This document is intended to serve as a guide for those who are researching or assembling a new vocational program proposal. The important considerations include a comprehensive listing of facts to gather and information to consider when making decisions about new programming. This document should be viewed as a tool rather than a "form" to complete.

I. Description

A. Researchers/planners of this proposed program

B. Recognition to be provided--certificate, diploma, degree

C. Proposed implementation date

D. Brief description of general program outcomes

II. Evidence of Need

A. Supply/demand data: employment opportunities for entry level jobs. Sources of data used in projections.

B. Specific needs by business firms or employers; prospective employers and anticipated new hires.

C. Future employment opportunities; special considerations which may change or alter the employment opportunities in these occupations five years from now.

D. Location of potential job opportunities; of the students completing, where are they most likely to find job opportunities?

E. Economic impact on the community during the next three years if all persons needed for expansion could be hired.

III. Students

A. Special or unique characteristics identified by employers as prerequisites for employment. Consider such things as minimum age, educational background, socio-economic background, previous employment experience, special physical needs and limiting physical handicaps.

B. Proposed admission requirements; enrollment limitations and rationale; selections procedures to be used if there are enrollment limitations.

C. Enrollment potential; what has been done to determine student interest in the proposed program?

D. Enrollment estimates, quarterly enrollment for the first year, annual enrollment for the following years.

IV. Program Design

A. Major objectives or goals of the proposed program

B. Structure of the program; method of operations, intake periods, suitability for evening or part-time instruction

C. Relationship of the proposed program to existing program and support areas; forecast of anticipated impact on existing programs and support areas within three years

D. Future expansion plans or possibilities

E. Required approval(s) from other agencies (licensing, certification, accreditation)

V. Participation/Coordination

A. Advisory Committee members; who have been involved and what kind of involvement have they had

B. Involvement and contributions of employers not on the Advisory Committee which may influence the decision to initiate this program

C. Community/state agencies; agency representatives involved in the planning process and involvement and contributions of each agency involved

D. Other educational institutions

1. Similar programs offered in other Nebraska public, independent, or proprietary institutions

2. Evidence of notification to other educational institutions

3. Proposed cooperative arrangements with other educational institutions, agencies or business; efforts toward secondary articulation

E. Rationale for this institution offering this program

VI. Resources and Budget

A. Staffing; potential staff who are qualified to teach the program; job description(s) for instructional staff

B. Facilities; requirements for this program; special features, utilities, space requirements in square footage; available space and new space required (first, second and third years)

C. Equipment requirements; new equipment; dollar value estimate for needed equipment

D. Program implementation; schedule of proposed activities

E. Projected income; state aid, vocational education reimbursement, tuition and fees, other

F. Estimated budget and accompanying narrative for one and two years

VII. Summary

A. Projected impact of proposed program in meeting identified occupational needs

B. Reasons the program is being proposed at this time

C. Relative justification:

Are existing programs sufficiently less justified to warrant a redirection of resources toward this program?

III. Involvement Plan

A Description

The involvement plan is the second piece of material developed by the Program Planning Project. The plan is presented as a matrix which describes potential roles of various groups and agencies in planning a new program.

The Participation Matrix uses eight generic questions which encompass the seven sections in the Important Considerations document. Taken together, these eight questions summarize the concerns to be addressed in the program-planning process. The agencies and groups listed across the top of the document are organized by categories:

State Government and Related Groups

Local Government and Related Groups

Educational Agencies

Employers

Employees

General Public

Southeast Community College*

*Please note the Participation Matrix describes roles of positions within SCC-Lincoln. As other schools use this matrix, local positions should be inserted appropriately.

A descriptive scale was developed for each question, describing the possible involvement of each agency or group. The scales are designed so that each descriptor includes any below it in the scale. For example, in the scale of ASSESS, DESCRIBE, IDENTIFY (where assess is the most powerful) the word DESCRIBE indicates that that agency or person describes the existing situation and may also identify information about that situation.

Here are the eight questions on the Participation Matrix and the the scales with their meanings:

1. What is the title and nature of the program being proposed?

DIRECTION (make decisions about focus and scope)
MANAGEMENT OF DEVELOPMENT (implement and direct development process)
DEVELOPMENT (generate, gather, and collate information)
INPUT (suggest potential programming)

2. Is the proposed program consistent with the role and mission of the College?

SET POLICY (describe legal limits)
INTERPRET POLICY (translate legal policy into operational terms)

3. Is there evidence that there is a continued and significant demand for trained personnel now and in the future?

DETERMINE (make final decisions from available information)
INTERPRET/PRESENT (synthesize information/make synthesis available)
GATHER/REPORT (collect and assemble information)
SOURCE (provide information upon request)

4. Is there evidence that sufficient potential students exist who will be able to benefit from the proposed program?

DETERMINE (make final decisions from available information)
INTERPRET/PRESENT (synthesize information; make synthesis available)
GATHER/REPORT (collect and assemble information)
SOURCE (provide information upon request)

5. What is the design of the program--now and in the future?

DIRECTION (make decisions about focus and scope)
MANAGEMENT OF DEVELOPMENT (implement and direct development process)
DEVELOPMENT (generate, gather, and collate information)
INPUT (suggest potential programming)

6. What are the community implications of SCC offering the program, and are they such that progress toward implementation should continue?

ASSESS (evaluate information)
DESCRIBE (collate and present information)
IDENTIFY (collect information)

7. What community resources exist which can be helpful to the implementation and operation of this proposed program, and are they sufficient to move ahead?

ASSESS (evaluate information)
DESCRIBE (collate and present)
SOURCE (provide information upon request)

8. What resources are required to offer this program, and are college and community resources adequate to implement the program?

ASSESS (evaluate information)
DESCRIBE (collate and present information)
IDENTIFY (collect information)
SOURCE (provide information upon request)

When the Participation Matrix as developed for the Sonography Program at SCC is studied, one can see more clearly the roles of agencies and groups in the program-planning process.

The color coding was added to help the reader obtain an overall of summary picture. Words in each of the scales are divided into five groups, denoting a certain level of responsibility and/or function.

Each group was assigned a color to make the Participation Matrix more readable. Please note that three of the descriptors (Direction, Determine, and Assess) have been assigned to two colors. These words have been split to designate primary and secondary responsibility.

The SCC Participation Matrix may be different from another school's perceptions and experiences, because of variances in local conditions, different leadership styles, etc. A blank Participation Matrix is included in this Guide along with the one which was filled in for use by SCC-Lincoln. When program planners are looking at the overall functions of agencies and groups in the planning process at the local college, the blank matrix can be filled in to reflect roles in relation to that local school.

KEY: Policy Setting (PS) ■ | Policy Interpretation/ Administration (PI) ■ | Information Interpretation/ Planning (II) ■ | Information Gathering (IG) ■ | Information Source (IS) ■

	Legislative Representative	Executive Representative	Educational Equity Specialist	Voc. Ed. Subject Matter Specialists	Vocational Rehabilitation	SOICC	Research Coordinating Unit	Other NDE Representatives	State Vocational Advisory Council	Balance of State CETA	Dept. of Labor Training Officer	Private Industry Council	Nebraska Job Service	Other Dept. of Labor Representatives	Economic Development Community Affairs	Economic Development Industrial Development	Economic Development Research	Post-Secondary Coordinating Commission	Other Commissions	Accrediting, Licensing Boards	Mayor and City Council	Chamber of Commerce	Department of Economic Development	CETA	Private Industry Council	Commissions - Human Rights - Women
1. What is the title and nature of the program being proposed?	(PS)	(PI)		(IG)	(IG)		(IG)		(IG)	(IG)		(IG)	(IG)			(IG)				(IG)		(IG)	(IG)	(IG)	(IG)	(IG)
2. Is the proposed program consistent with the role and mission of the College?																						(IS)	(IS)	(IS)	(IS)	(IS)
3. Is there evidence that there is a continued and significant demand for trained personnel now and in the future?														(IS)			(IS)	(IS)	(IG)	(IG)						
4. Is there evidence that sufficient potential students exist who will be able to benefit from the proposed program.				(II)		(IG)	(IG)		(IG)			(IG)														
5. What is the design of the program — now and in the future?			(IG)	(IG)	(IG)					(IG)	(IG)							(PI)						(IG)		
6. What are the community impact implications of SCC offering the program and are they such that progress toward implementation should continue?	(II)	(II)				(II)	(II)	(II)	(II)	(II)	(II)	(II)	(II)	(II)	(II)	(II)			(IG)		(II)	(II)		(IG)	(IG)	(IG)
7. What community resources exist which can be helpful to the implementation and operation of this proposed program, and are they sufficient to move ahead?																										
8. What resources are required to offer this program, and are college and community resources adequate to implement the program?				(IG)			(IG)	(IG)	(IG)						(IG)					(IG)						

State Legislative and Exec. Branches	Nebraska Department of Education	Related Groups	City-County Government & Relate
State Government and Related Groups			

Southeast Community College Lincoln Campus	Governing Board (38)	Area Administration (5)	Campus Director (12)	Dean of Instruction (12)	Department Chairpersons (15)	Subject Matter Specialists (3)	Professional Associations (14)	Unions (15)	Individuals	Personnel Officers (15)	Training Directors (15)	Management (15)	Ownership (15)	General Public (15)	Secondary Policy-Making Representatives	Secondary Curriculum Specialists (13)	Other Private Two-Year Schools	Other Nebraska Community Colleges	Other SCC Campuses	Other Private Colleges	Peru State College	Nebraska Wesleyan	Union College	Policy Representatives	Management Representatives	Subject Matter Specialists (34)	Bureau of Economic Research	Other City County Representatives	County Commissioners	Planning Commission	Commissions - Human Rights - Women (34)
Employees																															
Employers																															
Gen. Public																															
Educational Institutions: Secondary																															
Educational Institutions: Two-Year Post-Secondary																															
Educational Institutions: Other Four-Year Post-Secondary																															
Educational Institutions: University of Nebraska																															
Related Groups																															

IV. Planning Process Model

A Description

The "Important Considerations" and the "Participation Matrix" are a part of the planning process for a new vocational program. They are practical tools which are used within a series of planned actions--a process. SCC-Lincoln has adopted such a process which provides general direction for new program planning.

The research and development model adopted by the Campus is described in Figure A-1. It is based upon the "CIPP" model developed by Dr. Daniel Stufflebeam. It provides a conceptual framework through which research questions can be formulated to assess a vocational program at any stage in its justification, development, implementation, or operation. The model suggests evaluation considerations should exist in four major arenas. These arenas are identified as Context, Input, Process, and Product areas of concern. The justification process for new programs is essentially based on the Context and Input components of the model. Process and Product components are reserved for the latter tasks of curriculum development, evaluation, and product evaluation.

The "Context" component (Figure A-2) of the model calls for questions aimed at assessing the environment in which the program idea is being considered. Questions originating from this basis and appearing in the "Important Considerations" are those related to role and mission compatability, necessity of duplication, if any, and whether the relative merits of a proposed program outweigh the positive considerations for other programs that could or may be offered.

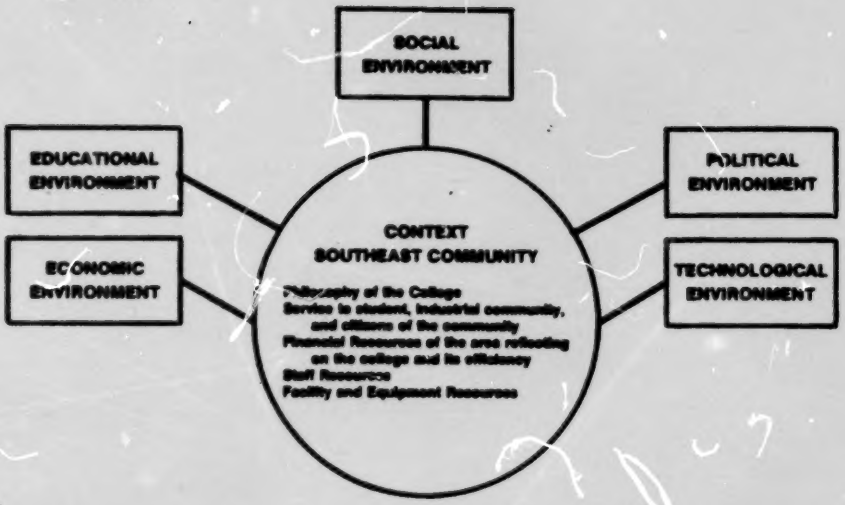
The "Input" component (Figure A-3) of the model calls for inquiring in areas such as: 1) employment demand; 2) educational need; 3) student interest; and 4) availability of qualified staff.

With the leadership provided by the conceptual model as a foundation, practical tools can be developed to accomplish the intent. The purpose of this project is to develop and describe these practical tools, making them useful for the purpose of program justification to the staff of the campus.

PLANNING PROCESS MODEL
SOCIAL ENVIRONMENT
EDUCATIONAL ENVIRONMENT
ECONOMIC ENVIRONMENT
POLITICAL ENVIRONMENT
TECHNOLOGICAL ENVIRONMENT
CONTEXT
SOUTHEAST COMMUNITY
Philosophy of the College
Service to student, industrial community, and citizens of the community
Financial Resources of the area reflecting on the college and its efficiency
Staff Resources
Facility and Equipment Resources
COMMUNITY SURVEYS
GOVERNING BOARD
BUSINESS AND INDUSTRIAL FIRMS
CITIZENS AGENCIES SUB-GROUPS
STAFF AND STUDENTS
INPUT PROGRAM INPUT
PROGRAM IDENTIFICATION
Will Program Identified:
1. Supply Manpower needs?
2. Stimulate economic growth?
3. Assist in solution of social problems?
4. Broaden educational opportunities?
5. Satisfy personal needs?
ADVISORY COMMITTEES
EMPLOYERS
BUSINESS AND INDUSTRIAL FIRMS
COMMUNITY SUB-GROUPS
STUDENTS
PRODUCT EVALUATION
1. How many students trained are employed in occupation related to training?
2. Do students who receive training advance more rapidly than non-training employees?
3. Are students who receive training more satisfactory than non-training employees?
4. Are the occupational needs of the community being served?
FACULTY
RESOURCES
ADVISORY COMMITTEES
ADMINISTRATION
STUDENTS
PROCESS CURRICULUM DEVELOPMENT
Will the Curriculum:
1. Satisfy educational objectives?
2. Provide occupational competence?
3. Provide for personal development and interpersonal relations?
4. Provide opportunities for experiential learning?
5. Satisfy the needs of the student, institution and the community?

FIGURE A-1

FIGURE A-2



This element asks the question, "What is known about the community for which there is no published base data, but will have an influence and impact planning?"

This element is not the beginning, nor is it the end in the plan- g phase, many of its components are nebulous, and they may be only se "feelings or insights" that an administrator or staff person has about the community. There are numerous environments which impinge upon the operation of the college and require close attention in both the planning and evaluative phases.

Some of the environments might be:

SOCIAL ENVIRONMENT

This refers to the traditions and values of the community: Is the community conservative, or liberal? Is the community heavily ingrained with ethnic, or religious feelings? What programs may be opposed by many or some of the social leaders?

EDUCATIONAL ENVIRONMENT

This is simply the existence of other educational institutions in the community. Will they oppose or cooperate in educational planning? Will they be in a competitive or supportive position with our plans? We should consider the following educational institutions as in our area; UNL, Wesleyan, Union College, Peru, Doane, York College, Proprietary Schools, Public Schools, as well as Fairbury and Milford Campus.

ECONOMIC ENVIRONMENT

This factor is particularly important in planning occupational programs. Capital investments by businesses and government spending in the public sectors have a major impact on the communities livelihood. Occupational education must be sensitive to changes in the economy and many times certain key industries can serve as guides to future plans.

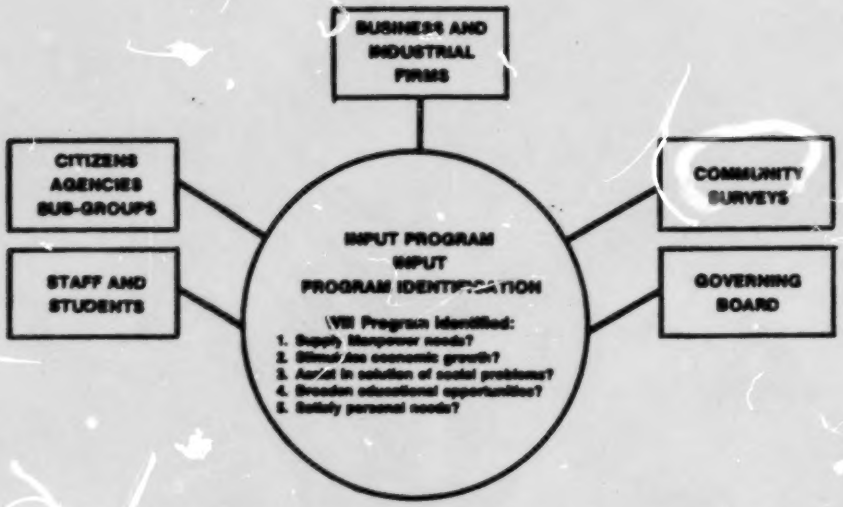
POLITICAL ENVIRONMENT

Political action on a national level is important from the enactment of new laws regulating minimum wages, equal employment opportunities, social security, etc., but the action by local and state political groups have a more immediate impact on planning. Such questions should be asked as: Are there strong lobbyists opposing our entry into specific areas of training?; Will our plans be viewed by political groups as a threat to their districts?; And are there licensure, certification or other special endorsements that are being considered by the political environment.

TECHNOLOGICAL ENVIRONMENT

The implementation of new equipment or processes, the retirement of old machinery or processes, the infusion of new industry into the community and other technological change may require the college to delete some programs and to implement others. The college may have to "shift gears" by providing fewer full-time programs and offer more retraining opportunities for those workers either displaced or being displaced. Generally many of those questions can be forecast by Advisory Committees, but many times this information has to be gained by frequent visits to employers, or by keeping our ears tuned.

FIGURE A-3



This element asks the question, "What data can we gather and from whom should we seek the information to determine the feasibility of this program or service."

The chart suggests only a few of the sources of potential data, others should be identified to insure the collection of sufficient relevant information so an assessment can be based on facts.

The community surveys must be carefully designed and systematically administered. Before a method is selected for surveying the target population, you should define the expected outcomes. These outcomes should be constructed to provide the specific information that will be useful. In essence, you should decide what information is needed and why it is needed.

The purpose of completing a survey is to gather data which can be used to draw conclusions and make generalizations which will help the college in solving problems relating to program identification, development, implementation and evaluation.

Some of the questions needing to be answered are:

1. Is the program justifiable in terms of manpower supply and demand data?
2. Is there adequate student and community interest and/or support for the program being considered?
3. Does this institution have or can it obtain the necessary resources (human, financial, etc.) to offer this program?
4. Should a new program be developed, an existing program modified, or program(s) terminated in this institution?
5. What additional information is needed to justify program suggestions?

V. Piloting the Process

Choosing the Potential Progam

To determine whether or not the Important Considerations and the Participation Matrix were useful planning tools, we inserted them into a program planning process which was about to begin. This would be our "pilot"--a good way to check out whether or not our ideas were workable.

The New and Emerging Occupations Project which SCC-Lincoln completed in 1980 produced 19 occupations which showed potential as occupations which will need trained workers in the near future in Nebraska. These occupational areas are:

New and Emerging Occupations

Automotive Diesel Technician

Automotive Electronics Technician

Alcohol Plant Technician

Bio-Medical Equipment Repair Technician

Dietetic Technician

Home Health Aide

Human Services Technician

Industrial Hygiene Technician

Legal Assistant

Multi-Competency Health Technician

Nuclear Power Technician

Podiatric Assistant

Semi-Trailer Repair Technician

Solar Energy Technician

Sonographic Technician

Swine Confinement Specialist

Tumor Registrar

Vending Machine Repair Technician

Word Processing Specialist

One of the requirements of the Program Planning project was that one of the NEO's be chosen to use in a pilot of all developed program planning materials. The task of choosing which new and emerging occupation would be most appropriate for SCC to explore as a potential program was given to the Management Council. The Management Council consists of department chairpersons, the Dean of Instruction, Campus Director, faculty and student representatives and support services managers. This group was involved as a part of the New and Emerging Occupations Project and was well aware of the content of the Program Planning Project.

Description of each of the NEO's were given to all Management Council members, and they were asked to discuss the pros and cons of implementing a training program for each occupation. After discussion, the choices were narrowed to three--Diagnostic Sonography Technician, Semi-Trailer Repair Technician, and Industrial Hygiene Technician. Department Chairpersons in the three related areas then examined potentials and discussed the ideas with their respective staffs. Recommendations were returned to Management Council where Diagnostic Sonography Technician was chosen as the pilot program.

The sonographer is a skilled person qualified by technical education to provide patient services using diagnostic ultrasound under the supervision of a doctor of medicine or osteopathy responsible for the use and interpretation of ultrasound procedures. The sonographer may be involved with the patients of a physician in any medical setting for which the physician is responsible. The sonographer assists the physician in gathering sonographic data necessary to reach diagnostic decisions. Sonography is a highly skilled allied health profession requiring judgment and capability in assisting the delivery of health care as it relates to this modality.

The process of identifying potential new programs at SCC-Lincoln happens in a variety of ways. Potential programs may be suggested by a variety of groups and individuals. The Participation Matrix suggests most possible sources for new program ideas.

Designating Roles

After the initial idea is put forth, administrators, staff, advisory groups, and others (as indicated in the Participation Matrix) provide and gather information. Department chairs generally direct the initial efforts and look for general indicators of program need. A broad base of support for the potential program must exist, usually indicated by the existence of professional organization, licensure, and employer-expressed need.

If the general overview looks good, a brief summary of the proposed program with a rough budget is submitted to the Campus Director. If the Campus Director feels that the proposed program is promising, the ideas are presented to the Management Council for consideration and input. Management Council does not have decision-making authority, but the style of management used at SCC uses input from many sources prior to major decisions. The individuals who are part of Management Council have varied experiences with new and old programs and often provide insight into the decision-making tasks.

Since the project document indicated that SCC-Lincoln would pilot the program justification process with an identified new and emerging occupation, the scope of occupational areas to be considered was limited to nineteen at the outset. The remainder of the pilot reflects actual processes used when examining a potential program for implementation at SCC-Lincoln.

The Participation Matrix is a graphic description of the roles of different groups and individuals in the program justification/planning process. The roles outside SCC-Lincoln vary depending on program content and other factors. The internal roles of SCC personnel tend to be more stable from program to program. The following description of roles in the justification/planning of the Sonography Program elaborates on the matrix.

Phyllis Kendle, Health Occupations Department Chairperson, manages the development of new programs in her area. Since Sonography is a health related field, the program justification process is primarily managed by her. Her first step is to enlist the help of others in health occupations areas to assist in information gathering and processing. In the case of Sonography, the program supervisor for Radiology Technology was involved because of the close relationship between X-ray technology and ultra-sound technology.

The role of the program person is to gather and synthesize information and to assist in the development of proposal and statements about the proposed program. This person often has more direct and technical knowledge of the proposed program than the department chairperson. Also, should the program be approved, the program supervisor may well have a role in developing curriculum and supervising instruction.

A Steering Committee is established composed of non-community college individuals who have knowledge in the content area of the

proposed program, the department chairperson and the program supervisor. This Steering Committee serves as a means of enacting the roles described in the Participation Matrix. The committee is a forum for input and debate by various participants.

The Steering Committee for the proposed Sonography Program consisted of the following individuals:

Mr. Gary Reznicek, R.T.	Lincoln General Hospital
Ms. Chris Arrigo Scheer, R.T.	
Ms. Julie Darnell, R.T.	St. Elizabeth Community Health Center
Dr. Alexander Kovak	Veterans Administration Medical Center
Dr. David Kiple	Radiology Associates
Dr. W. Q. Bradley	Radiology Associates
Mr. Len Benson, R.T.	Bryan Memorial Hospital
Mr. Dick Waller, R.T.	St. Elizabeth Community Health Center
Ms. Sandy Cronk, R.T.	Lincoln General Hospital
Dr. Larry Cromwell	Bryan Memorial Hospital

The Campus Director, Dean of Instruction, and Management Council all take roles which monitor and guide activities of the people managing the justification process for the potential new program. Other roles of the campus management come later in the process when decisions on whether or not to present the potential program to the President and the Board of Governors will be made and, if approved, direct actual curriculum development.

Gathering Information

Developing a needs assessment instrument means assessing local conditions and the information needs of the community college and designing a tool(s) which most effectively and efficiently gathers the needed information outlined in the Important Considerations Document. In the case of Sonography, a survey of area hospitals was developed to assess their current use of trained sonographers and their projected need for trained sonographers.

While the questionnaire is one method of information gathering, it is not the only method. Steering committee members, the department chairperson, and the program supervisor all search out other sources of information about program content and program feasibility. Some of the information sources which may be used are:

a) potential students (local/regional)

b) potential employers (local/regional)

c) current employers in the field

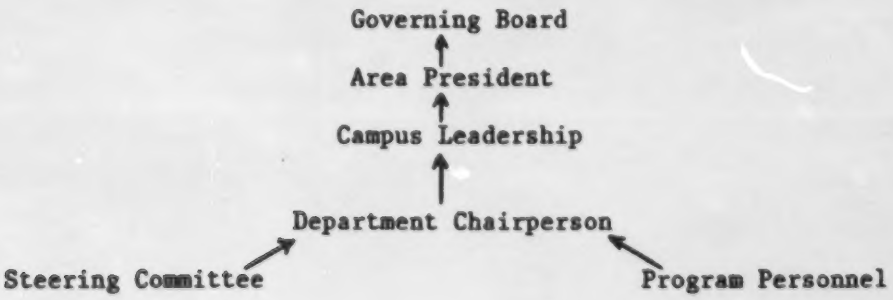
d) visits to existing training programs

e) national/regional decision makers

f) outside consultants

Decision Time

When all the information is gathered, decisions are made at each level. If the decision is "yes, the proposed program looks feasible," then the next higher level examines information. Each level uses the Important Considerations document to examine all of the information. This way every group uses similar criteria to judge the feasibility of the proposed program. The levels of decision makers are illustrated here with the lower level making recommendations to the next higher level.



VI. Justification Process Used for Diagnostic Medical Sonography

This final section of the Guide is a detailed description of the justification and planning process developed by Phyllis Kendle for the Health Occupations Education Department in looking at a potential sonography program. Mrs. Kendle, Chairperson of the Health Occupations Education Department, has carefully documented activities and events and graphically described them in a PERT (Program Evaluation and Review Techniques) format.

It should be restated here that each and every time a potential area for vocational programming is examined the detailed steps and routines will vary. The process developed by Mrs. Kendle for use in this "pilot" of sonography is an example of one department's approach to using the processes and materials described in this Guide.

Sonography Pilot

The program justification process for sonography in the Southeast Community College Health Occupations Education Department included the following five steps:

I. The Problem is Identified

The request or suggestion for a new program may come from a health agency, a government agency, an interested professional, a staff member, a potential student, or an advisory committee. The radiology advisory committee recommended the College investigate the Diagnostic Medical Sonography Program.

Subsequently, the program was one of several submitted to the Lincoln Campus Management Council, chaired by the Campus Director, and then in turn to the College President and Governing Board for consideration as a New and Emerging Occupation.

II. Program Description

In preparation for informing the appropriate people regarding such a program, a synopsis of the program (Appendix B) was developed which briefly described:

A. Program title and degree

B. Possible sonography program

C. Program justification based on current medical technology

D. Program objectives

E. General program and curriculum outline

F. Budget Considerations

G. Facility requirements

Some of the sections were very brief or even blank, because an effort to assemble the information uncovered areas which needed further research. The Important Considerations document and the Participation Matrix were used in the following activities to guide the gathering of information needed to assess the feasibility of beginning a Diagnostic Medical Sonography Program.

III. Data Collection and Need Justifications

Using the Participation Matrix, members of a steering committee were chosen to assist in the program justification/planning process for sonography. The primary role of this committee was to serve as a sounding board and information source in gathering the information indicated

by the Important Considerations document. The actual steering committee for this program consisted of individuals representing hospitals, radiology departments, physicians, radiographers, and sonographers.

Suggestions were made for the development of a survey instrument sent to 118 hospitals and clinics in Nebraska (Appendix C).

Concurrently, a bibliography is in the process of development, programs are being contacted, and national organizations are being contacted.

The steering committee did not believe a survey of high school students was appropriate since this is such a new field and little of the sonography area is known to the general public.

It was proposed, however, that a survey of X-ray technicians and other allied health people be done to solicit their interest as potential students and in anticipation of enrollment surveys.

IV. Program Development Process

The program planning process model used in the development of the sonography program is the Program Evaluation and Review Technique commonly referred to as PERT.

The PERT model is an example of the system approach to planning and is a relevant procedure for complex, long-range projects.

The network pictorially shows the critical path of the program and relationship of required events and activities from the time the program is conceived to the time students are admitted into the program. The network scheduling technique fundamentally is a management tool which aids in program (project) planning, work scheduling, cost estimation, and controlling as well as preplanning. As a manager's tool, it helps to define and coordinate what must be done to complete the objectives of a project on time.

Prior to developing the PERT Network, events and activities of the program planning project were identified and the events sequenced to form the network.

The basic steps involved in constructing a PERT network include:

1. Identifying the events to accomplish the plan. An event can be described as a product of an activity or a decision. An event occurs at a specific instant of time. The events are arranged in chronological order and on the network are pictorially shown as circles connected by activity arrows on the network.

Events specify the start or completion of something, i.e., report completed, letters of support received, steering committee meeting held.

Each event can be written on a 3 x 5 card and then the cards arranged in a normal sequence. No event may occur until all activities leading to it have been completed.

2. Activities are next schematically represented. These are the time-consuming elements of the flow chart or network, and include a process, job, or task. Activities are represented by arrows. An activity cannot start until all preceding activities have been completed (although activities can occur concurrently). No following activity can start until the present activity is completed. No event occurs until all the activities leading to it have been completed.

Activities are represented on the network as an arrow, i.e., write report, design questionnaire, analyze results.

No activity can start until its beginning event has taken place. A broken arrow is a dummy activity and requires no time.

Establish activity time in hours, days, week and/or tenths of week, but be consistent.

3. Establish target dates and develop time frames for an effective management tool. Realistic time estimates are arrived at by determining, by those qualified to judge, how long the work will take. Three estimates, optimistic time, most likely time, and pessimistic time are then calculated for a weighted average. Elapsed time is represented on the network diagram and enclosed in parenthesis and associated with an activity arrow.

Formula for performance time - estimated time for each activity is:

Optimistic - a
Most likely - m
Pessimistic - b
Average time - Te

$$Te = \frac{a + 4m + b}{6}$$

Example:

$$\frac{a}{12 \text{ days}} \qquad \frac{m}{18 \text{ days}} \qquad \frac{b}{30 \text{ days}}$$

$$Te = \frac{12 + 72 + 30}{6} = \frac{114}{6} \text{ or } 19 \text{ days}$$

The individuals managing the process determine the time frame and target dates based on available resources.

The PERT model described identifies three phases in the development of the program for presentations to the Campus Director, College President, and Governing Board to keep them apprised of progress.

Each phase allows for appropriate rescheduling or recyling and for major decisions regarding the continuation of the project.

The PERT model can be used in steps in program planning beyond the program justification phase. For the purposes of this guide, however, only the justification steps have been inserted in the PERT model.

V. Involvement of Various Groups

Using the Participation Matrix as a guide, the following are people who have been involved in the program planning model to date:

A. Professional Staff

Governing Board
Campus Director
Project Director
Program Developer(s) Health Occupations Education

B. Consultants

American Medical Association
Steering Committee
Staff - local hospitals

C. Participants

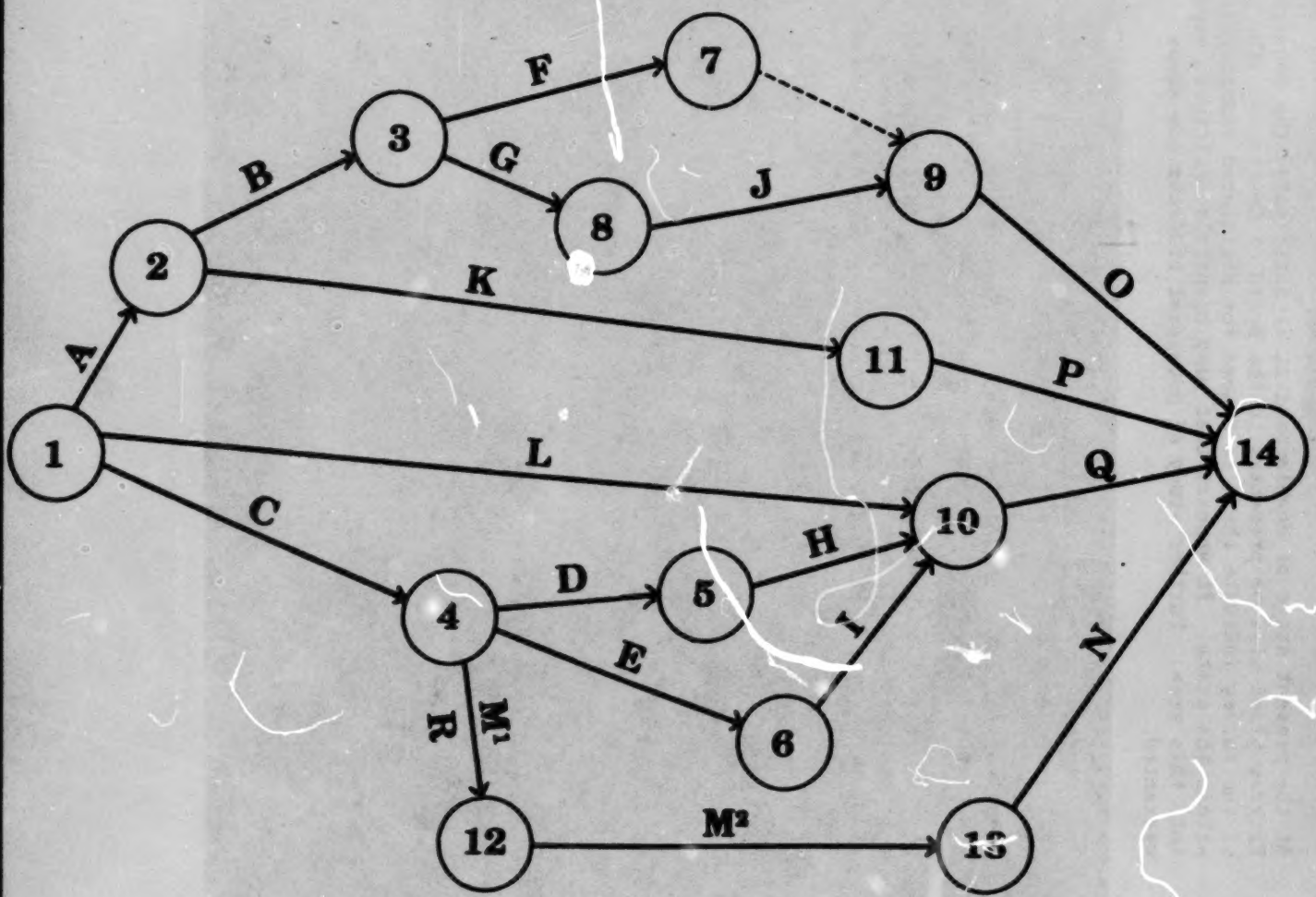
Faculty
Hospital Staff Members

D. Others

Public Relations
Accreditation Team (Radiology)
Accreditation Team State Department of Education

PERT NETWORK FOR PROGRAM JUSTIFICATION

EVENTS	ACTIVITIES	TIME FRAME	TARGET DATE
1. Request for program received	A. Discussion of SCC Role		
2. Interested parties contacted	B. Prepare letter inquiry regarding interest and proposal (using Participation Matrix)		
3. Steering Committee meeting held	C. Design a letter to National Association (called)		
4. National Association contacted (Joint Review Committee on Education in Diagnostic Medical Sonography)	D. Preview available materials		
	E. Design letter to national programs		
	F. Design letter to hospitals and clinics		
5. Bibliography developed	G. Design questionnaire for needs analysis		
6. Existing programs contacted	! Summarize data from bibliography		
	I. Analyze data from national programs		
7. Hospitals, clinics, medical societies notified	J. Summarize results of questionnaire and contact those not received		
8. Needs analysis completed	K. Develop guidelines for Steering Committee		
9. Letters of support received	L. Design planning model		
10. Planning model designed	M. Preview national guidelines and (R) essentials for educational program		
	M. Review task analysis of sonographer		
11. Steering Committee formed	N. Complete and print objectives and terminal behavior		
12. Program objectives identified	O. Summarize results of reports		
13. Terminal behavior identified	P. Print and distribute steering committee policies and procedures		
14. Proposal presented to College officials and Governing Board	Q. Print and distribute planning model		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A DECISION

At the present stage of development it is anticipated the Sonography Program plans will be presented to the Board of Governors. The results of the survey indicate there is a need for Registered Sonographers within the state. It appears that many hospitals anticipate expanding into this area. Further study of potential students now seems warranted.

In Nebraska, it appears the Radiologic Technologist is most apt to indicate an interest in the field, and this may be the group to survey initially for student interest.

The steering committee will be asked to react to the results of the questionnaires prior to presentation to the Board.

Whether it is feasible for the College to offer this program at this time will depend upon the availability of a wide band of sonography study areas, the availability of clinical experience, and a qualified staff, and the availability of financial resources.

Bibliography of Sources (Appendix A)

Program Justification Materials

1. Des Moines Area Community College (Iowa)
2. Illinois Community College Board
3. Maricopa Technical Community College (Arizona)
4. Oregon Department of Education
5. California Department of Education
6. Colorado Department of Education
7. All Nebraska Technical Community Colleges

NEW PROGRAM PROPOSAL (Appendix B)

I. TITLE:

Diagnostic medical sonographer - Associate Degree

II. GENERAL PROGRAM DESCRIPTION:

The sonographer is a skilled person qualified by technological education to provide patient services using diagnostic ultrasound under the supervision of a doctor of medicine or osteopathy responsible for the use and interpretation of ultra sound procedures. The sonographer may be involved with the patients of a physician in any medical setting in which the physician is responsible. The sonographer assists the physician in gathering sonographic data necessary to reach diagnostic decisions. Sonography is a highly skilled allied health profession requiring judgment and capability in assisting the delivery of health care as it relates to this modality.

III. JUSTIFICATION:

The use of ultrasound as a diagnostic tool is growing rapidly. Within five years ultrasound will replace many diagnostic procedures. There are few people prepared to work in this area. It has been suggested by members of the Radiologic Technology Advisory Committee that this is an area which is appropriate for community college education and which we should explore and consider delivering.

IV. PROGRAM OBJECTIVES:

The role of the sonographer includes but is not limited to:

Reviewing and/or recording the pertinent patient history and supporting clinical data to facilitate optimum diagnostic results.

Performing appropriate procedures and obtaining a record of the anatomical, pathological, and/or physiological data for interpretation by a physician.

Recording the sonographic data and other pertinent observations made during the procedures for presentation to the interpreting physician.

Exercising discretion and judgment in the performance of sonographic services.

V. GENERAL PROGRAM OUTLINE:

Diagnostic Sonography is a multidisciplinary science requiring the student to be suitably prepared and educated in the basic and applied principles of the modality. These include:

Knowledge and understanding of the Physical Sciences.

Knowledge of the anatomy and physiology of the organs and body systems Biological Sciences.

Patient Care ability

Clinical Medicine

Curriculum Content includes:

1. Physics
2. Instrumentation
3. Equipment standards
4. Biological effects of ultrasound
5. Applied Biological Sciences
6. Patient Care
7. Clinical Medicine
8. Applications and limitation of ultrasound
9. Related diagnostic procedures
10. Image evaluation
11. Administration

Each student must have acquired clinical knowledge and skills.

VI. BUDGET CONSIDERATIONS

VII. FACILITY REQUIREMENTS

QUESTIONNAIRE (Appendix C)

1. Please indicate the type of hospital in your area.
   urban ____
   rural ____

2. Specify number of beds. ____

3. Do you have an x-ray department?
   yes ____
   no ____

4. Do you currently do ultrasound exams?
   yes ____
   no ____

5. If the answer is yes, specify the ultrasound study areas in which you are involved.
   abdominal ____
   echocardiology ____
   echoencephalography ____
   gynecologic ____
   neurology ____
   obstetric ____
   ophthalmology ____
   renal ____
   thyroid ____

6. Average number of diagnostic exams performed each year (including echocardiography). ____

7. Number of echocardiography exams performed each year, if applicable. ____

8. Indicate with a check the equipment you have available.
   A-Mode ____
   M-Mode ____
   B-Scan ____
   Real Time ____
   Doppler ____
   Ortho-A ____
   Ortho-B ____
   Other ____
   Specify ____

9. Who currently performs the examinations?
   Registered Sonographer ____
   Radiologic Technologist ____
   Other ____

10. How many do you currently employ? ____

11. What is the current rate of annual turnover in this staff? ____

12. Do you anticipate expanding?
    yes ____
    no ____

13. Is there a radiologist on staff who reads the exams?
yes ____
no ____

If no, who does read them?
____

14. Do you believe there is a need for qualified sonographers in your community?
yes ____
no ____

In Nebraska?
yes ____
no ____

15. Would you employ a registered sonographer if they were available?
yes ____
no ____

16. If you do not currently do such examinations, do you anticipate you will in:
1 year ____
3 years ____
5 years ____

17. What starting salary would you expect a graduate of this program to receive?
$10,000-$12,000 ____
$12,000-$15,000 ____
$15,000-$17,000 ____
$17,000-$20,000 ____
$20,000 or more ____